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CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

IN THE MATTER OF PERCHLORATE CONTAMINATION AT A 160-ACRE SITE IN THE RIALTO AREA (SWRCB/OCC FILE A-1824)

Case No.: SWRCB/OCC FILE A-1824

GOODRICH CORPORATION'S BRIEF

Hearing Date: May 8-10 & May 15-17, 2007
Time: 10:00 a.m.
Place: San Bernardino County Auditorium

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I. INTRODUCTION

For the second time in five years, Goodrich is being forced to defend itself against baseless allegations brought by the Santa Ana Regional Water Board Staff. In 2002, the first time the "Advocacy Team" issued a CAO accusing Goodrich of contaminating the Rialto/Colton Groundwater Basin with perchlorate and TCE, the Regional Board held a full hearing and rescinded the CAO due to a lack of evidence. Today, the Advocacy Team's evidence is no stronger than it was in 2002. Indeed, the Advocacy Team cannot present a single witness that can testify that discharges from Goodrich's operations have even reached groundwater or threaten to reach groundwater.

Goodrich is being dragged through this costly and time-consuming procedure again not because there is any new found evidence of its responsibility for the contamination of the Rialto/Colton Basin, but rather because the Advocacy Team is under tremendous pressure from the public and from local and state politicians to find someone, regardless of their culpability, to cleanup the Rialto/Colton Basin. Goodrich, along with the other entities named in this proceeding, simply have been singled out from numerous former and current operators on the 160-acre site, many of which used and disposed of large amounts of perchlorate on the site.

The pressure to find a scapegoat, without any evidence of responsibility, however, is not a permissible reason to seek to lay blame on Goodrich. This is particularly true where, as here, the evidence pointing to the actual culpable parties is so clear. The evidence is overwhelming that contamination in the Rialto/Colton Basin was caused by years of manufacturing, testing, and disposing of fireworks on the 160-acre site. The poorly constructed, negligently maintained disposal pool used by fireworks manufacturers for more than fifteen years to dispose of tons of off-spec fireworks, propellants, and chemical mixtures containing perchlorate at the site is the only confirmed source of perchlorate contamination in groundwater on the 160-acre parcel.

The McLaughlin Pit, as the Apollo/Pyrotronics fireworks hazardous waste surface

impoundment has come to be known, was no secret to the Regional Board staff. In fact, the Regional Board staff actually approved a WDR for the disposal of 3,000 gallons per day of pyrotechnic wastes containing high concentrations of perchlorate into the pit. Members of the Advocacy Team, and other senior management of the Santa Ana Regional Board staff, personally observed and documented numerous violations at the McLaughlin Pit over the years, including contaminated water overflowing from the Pit. Yet the Regional Board staff did nothing. Under the Regional Board staff's supervision, the McLaughlin Pit fell into disrepair as thousands upon thousands of pounds of pyrotechnic waste were dumped into it, creating one of the most dangerous hazardous waste sites in the Santa Ana Region. Yet still the Regional Board staff did nothing. Not once did the Regional Board staff cite Pyrotronics, issue any penalties against Pyrotronics or even threaten any action.

This was despite regulations that the Regional Board was mandated to enforce that required monitoring to determine if the pit had leaked – monitoring that was never performed – and that required perchlorate to be sampled for when leaks are detected at hazardous waste surface impoundments such as McLaughlin Pit. When it came time to close the McLaughlin Pit in 1987, the Regional Board staff failed to require Apollo, Pyrotechnics, or anyone else to comply with applicable Subchapter 15 regulations regarding closure. More surprisingly, the Regional Board staff decided the area under the pit was clean based on only one sample – a sample that failed to test for perchlorate, nitrate, or any of the likely contaminants that were leaking from the obviously corroded pool. In fact, extraordinarily high levels of perchlorate have been detected in the entire 400-foot soil column under the McLaughlin Pit, with sample results showing perchlorate concentrations of hundreds of thousands of parts per billion in the soil under the pit. As result of the Regional Board staff's failure to properly regulate the Pit, failure to properly close it, and failure to require any effective sampling to determine leakage, massive releases of perchlorate into the soil and groundwater at the 160-Acre site occurred.

The City of Rialto, also a prosecutor in this proceeding, is not without blame with

regard to the McLaughlin Pit. The City issued a negative declaration for the subsequent development of the property on which the McLaughlin Pit is located, but never enforced its mitigation measures. According to the City's mitigation measures, Ken Thompson, Inc., the subsequent owner of the McLaughlin Pit, was to properly and lawfully close the Pit and obtain approval from several agencies after having done so. But there is no evidence that a proper closure of the McLaughlin Pit ever occurred or that Ken Thompson, Inc. ever got required agency approvals. Indeed, it was the City that stood by as Ken Thompson's consultant – who lacked the professional licenses required by regulation – burned 54,000 pounds of hazardous waste in the pit in violation of numerous federal and state laws. And it was the City of Rialto that was the only governmental agency that signed off on the illegal burn.

The result of the Regional Board staff's and the City of Rialto's neglect is that the McLaughlin Pit was permitted to leach perchlorate contaminated waste into the ground for decades, contaminating the Rialto/Colton Basin.

Simply because Goodrich conducted limited operations in Rialto approximately 50 years ago does not support issuing the subject CAO against Goodrich. Moreover, while Goodrich has always maintained its innocence, Goodrich's history with the Regional Board has always been one of cooperation. Goodrich provided four million dollars to water purveyors and spent millions more investigating not only the 160-acre parcel but also contamination miles downgradient of the 160-acre parcel. The results of this thorough investigation are conclusive—Goodrich did not cause or contribute to the groundwater contamination in the Rialto/Colton Basin.

This brief will show, with overwhelming evidence, that: (1) Goodrich did not discharge any TCE or ammonium perchlorate into the groundwater; (2) Pyrotronics/Apollo's operations on the 160 acre site, including its use of the McLaughlin Pit, discharged massive amounts perchlorate into the groundwater, and (3) the Regional Board staff's and the City of Rialto's negligent oversight of the operation and closure of the McLaughlin Pit allowed water containing high concentrations of

perchlorate to reach and contaminate the Rialto/Colton Groundwater Basin.

II. BACKGROUND

After ten years of investigation and five years of cooperation and investigation by Goodrich costing millions of dollars, the Advocacy Team still has no credible evidence to issue a cleanup and abatement order, or Section 13267 order, to Goodrich. Yet, it persists in seeking to have the Draft Amended Cleanup and Abatement Order, No. R8-2005-0053, adopted (the "Draft CAO"). Draft Amended Cleanup and Abatement Order, No. R8-2005-0053; Letter from Jorge Leon to Tam Doduc and Karen O'Haire, February 27, 2007 (stating that Draft CAO constitutes pleading for this proceeding). The Advocacy Team's request should be summarily denied and the Draft CAO should be dismissed by the State Water Resources Control Board (the "State Board").

The Draft CAO alleges that Goodrich is liable under Water Code Section 13304 for operations that occurred in Rialto, California from 1957 to 1964. Draft CAO, Findings ¶¶ 27-34. The Advocacy Team claims that Goodrich's operations on a 160-acre parcel in Rialto "have caused or permit waste, i.e., perchlorate and/or trichloroethylene (TCE), to be discharged or deposited where it is, or probably will be, discharged into waters of the state." Draft CAO, Finding ¶ 1. Through the Draft CAO, the Advocacy Team seeks to order Goodrich and the other alleged dischargers to (1) essentially investigate and remediate the entire Rialto-Colton groundwater basin, which by the Advocacy Team's own estimate would cost hundreds of millions of dollars; (2) provide water replacement or contingency plans for 16 public drinking water wells as far away as six miles; and (3) even authorize the Executive Officer, a member of the Advocacy Team, to order the alleged dischargers to reimburse water purveyors for millions of dollars in costs purportedly incurred in cleaning up waste, abating the effects of waste, supervising cleanup and abatement, and taking remedial action. Draft CAO, Order ¶¶ 1-13.

As demonstrated below, both the Draft CAO and the Advocacy Team's Memorandum of Points and Authorities ("Ad. Team P&A's") and exhibits submitted on March 27, 2007, lack any credible evidence demonstrating that a discharge occurred

from Goodrich's operations into waters of the state. Rather, the Advocacy Team's cases boils down to overly simplistic claims that perchlorate or TCE contamination is coming from the 160-acre parcel and, as a result, Goodrich should be saddled with liability. This approach is grossly inadequate as a matter of law and under the facts of this case and will not withstand judicial scrutiny. *The law does not tolerate such imprecision.* The evidence detailed below demonstrates that Goodrich's operations did not cause contamination to the groundwater and that there are numerous other potential sources of perchlorate and TCE on the 160-acre parcel and throughout the Rialto-Colton basin. They include the two decades of fireworks manufacturing by Pyrotronics on the 160-acre parcel and its use of the Regional Board's sanctioned disposal impoundment (a.k.a. the "McLaughlin Pit"), the only confirmed source of perchlorate groundwater contamination on the 160-acre parcel according to the Advocacy Team's own account; the Robertson Ready Mix operations where the Regional Board permitted millions of gallons of water to wash through perchlorate contaminated soil; and the historic widespread application of Chilean Nitrate fertilizer in citrus orchards throughout the basin.

Likewise, the 2006 Draft CAO falls far short of any legal authority for its issuance. In seeking this relief, the Advocacy Team relies on many significant misunderstandings of the law. To start with, the Advocacy Team incorrectly assumes that the very statutes it seeks to prosecute Goodrich under, Cal. Water Code Sections 13304 and 13267, can be retroactively applied to conduct which began fifty years before these proceedings and ended years before the statutes' operative dates in 1970. This assertion runs contrary to case law that is nearly as old as this country that laws are not, and presumed not to be, retroactive, as well as the express provisions of and legislative history of the statute. As is evident below, even should the State Board erroneously seek to hold Goodrich liable under Water Code Section 13304, there is no evidence that Goodrich's acts violated any laws at the time of its operations in Rialto. In fact, Goodrich, a military government contractor, was required to comply with and follow specific military directives as to the handling and disposition of perchlorate and solvents. This alone precludes the State

Board from issuing an order to Goodrich. Equally misguided is the Advocacy Team's passing assertion that Goodrich is jointly and severally liable under Water Code Section 13304. Both the law and the Regional Board's own hand in causing the contamination prohibit the imposition of joint and several liability on Goodrich.

For these and the reasons set forth herein, Goodrich respectfully requests that the State Board dismiss the Draft CAO in its entirety.

III. GOODRICH OPERATIONS

A. Historical Background of Goodrich's Operations

In the late 1950's The B.F. Goodrich Company, now Goodrich Corporation ("Goodrich"), made an unsuccessful attempt to enter the "Space Race" through the manufacturing of solid rocket propellant. *See* Ex. 10 (GRC-018833-51); *see also* Merrill Dec. ¶ 12. At the time, Goodrich was hoping to parlay its knowledge of binders used in the manufacturing of rubber, for such items as tires, to help it move into the solid rocket propellant business. *Id.*; *see also* Ex. 10 (GRC-018833-51) ("The solid rocket motor business is a promising field for which our chemical polymer knowledge fits us.") To that end, Goodrich started a small research and development team in Brecksville, Ohio to study solid rocket propellant. *Id.* Soon, Goodrich decided to open a facility in Rialto, California with the hopes of obtaining production contracts from the United States Department of Defense. *Id.*

In September of 1957, Goodrich transferred approximately ten people from Brecksville, Ohio to Rialto, California to begin setting up this new research and development facility. Wever Dec. ¶ 3. It was not until 1959 that Goodrich obtained a contract with the United States government for actual production of rocket motors. Ex. 1 (KWKA00452123-29) (April 2, 1959 Negotiated Contract for Nord 18853); Ex. 52 (KWKA00452143-82) (June 4, 1959 Negotiated Contract for Nord 18966). The first production contract Goodrich obtained was for the Loki motor, also referred to as the HASP (High Altitude Sounding Projectile). *Id.* Two years later, in 1961, Goodrich obtained a contract to produce the Sidewinder missile. *See e.g.*, Ex. 82

(KWKA00452529) (April 18, 1961 Navy Memo).

Goodrich operated on the Rialto property for just five years before it was forced to close its plant. During these five years, Goodrich attempted, unsuccessfully, to establish a full scale rocket motor production operation servicing United States government contracts. Unfortunately, Goodrich encountered difficulties in the production of both the Loki and the Sidewinder, ultimately forcing it to shut down its operations in 1963. *See e.g.* Ex. 54 (KWKA00452247-48); Ex. 57 (KWKA00452281); Ex. 60 (KWKA00452283); Ex. 65 (KWKA00452314); Ex. 74 (KWKA00452541-45); Ex. 12 (KWKA00452713-14); Ex. 14 (KWKA00452719-23); Ex. 95 (KWKA00452736-77); Ex. 96 (KWKA00452730-51) Ex. 98 (KWKA00452749-57); Wever Dec. ¶ 46. In total, ***less than 1,000 production rockets were produced by Goodrich*** in Rialto before the plant ceased operations. Ex. 1 (KWKA00452123-29) (contract Nord 18853 totals 185 Loki motors); Ex. 52 (KWKA00452143-182) (contract Nord 18966 totals 600 Loki motors); Ex. 74 (KWKA00452541-45) (contract Nord 18966 reduced to 330 Loki motors); Ex. 93 (KWKA00452719-23) (indicates a Sidewinder contract for 311 motors but cracking developed in Lot 3); Merrill Dec., Ex. A.

Unlike later operators on the Property, during its five years of operation, Goodrich had an excellent safety record – not one explosion occurred during Goodrich's tenure. Wever Dec. ¶ 6, 62; Haggard Dep., 38:25-39:8. To ensure the safety of the facility, Goodrich followed standard industry practices at that time, and the then-existing government regulations on the use, handling and disposal of chemicals used to make solid rocket motor propellant. Wever Dec. ¶¶ 6, 54; Haggard Dep., 38:25-39:8.

All of Goodrich's waste solid propellant was disposed of by burning in a burn pit. Sachara Dec. ¶ 9; Graham Dec. ¶ 5-6; Beach Dec. ¶ 11; Willis Dec. ¶ 19; Staton Dep., 24:22-25:2. The burning of propellant waste is a highly efficient means to dispose of this waste. Wever Dec. ¶¶ 54-55; Oxley Dec. ¶ 13-14; Merrill Dec. ¶ 15; Ustan Dec. ¶ 8. During Goodrich's entire short-lived tenure in Rialto, all scrap propellant, excess oxidizer, and spent solvents were promptly collected, placed in combustible containers and taken

to the burn pit for disposal. Sachara Dec. ¶ 9; Graham Dec. ¶ 5-6; Beach Dec. ¶ 11; Willis Dec. ¶ 19; *see also* Staton Dep., 24:22-25:2. Former Goodrich employees have repeatedly testified under oath that propellant and other chemicals (including oxidizer and solvent) were never left laying on the bare ground at the facility, were never buried at the site, and were never disposed of in a pond, ditch, leach field or landfill at the facility. Sachara Dec. ¶ 6; Holtzclaw Dec. ¶ 10-12; Graham Dec. ¶ 9-11; Beach Dec. ¶ 8; Willis Dec. ¶ 20; Shook Dep., 30:10-14, 53:2-60:6; Staton Dep., 15:5-17:23; Garee Dep., 79:1-23; Morris Dep., 36:6-38:24; Haggard Dep., 36:6-38:24, Hernandez Dec. ¶ 5-7; Bland Dec. ¶¶ 10-1; Ustan Dec. ¶ 8. Because Goodrich burned all combustible industrial waste, the available evidence leads to the conclusion that Goodrich's short lived and small-scale operation did not contaminate, and does not threaten to contaminate, the groundwater at the 160-Acre Parcel or the Rialto-Colton Basin. Oxley Dec. ¶ 13-14; Kavanaugh Dec. ¶ 90, 92-96, 98; Kresic Dec. ¶ 52-53.

1. Goodrich Never Operated A Large-Scale Facility in Rialto

Goodrich never operated a large-scale rocket production facility in Rialto. Merrill Dec. ¶ 24. Indeed, Goodrich principally produced two rockets – the Loki and the Sidewinder. Both of these rockets were relatively small, the Loki was approximately five feet long and three inches in diameter and held approximately 16.8 pounds of propellant. Ex. 4 (KWKA00452572-591); Merrill Dec. ¶ 23, Ex. A. Initially, the Loki I loaded at Goodrich used a Thiokol propellant. Wever Dec. ¶ 13; *see also* Ex. 54 (KWKA00452247-48); Ex. 80 (KWKA00452271-77). Later on, after Goodrich researchers created their own proprietary propellant, the Loki II was produced using the new Goodrich formulation. *Id.* In total, less than 600 Lokis, including both the Loki I and the Loki II, were produced by Goodrich at its Rialto facility. Ex. 1 (KWKA00452123-29); Ex. 2 (KWKA00452202-3); Ex. 8 (KWKA00452314); Ex. 9 (KWKA00452557-59); Merrill Dec. ¶ 20, Ex. A.

The Sidewinder was a small air-to-air missile used by the United States military. Wever Dec. ¶ 14. The Sidewinder was approximately five feet long and between five to

eight inches in diameter and weighed approximately 55 pounds. Ex. 20387 (KWKA00452050). Because of cracking in the propellant grain, Goodrich never completed its production contract with the United States Navy. As a result of the Navy cancelling this contract, fewer than 500 Sidewinder motors were loaded at Goodrich's facility in Rialto. Ex. 11 (KWKA00452643-44); Ex. 12 (KWKA00452713-14); Ex. 13 (KWKA00452702-06); Ex. 14 (KWKA00452719-23); Ex. 15 (KWKA00452767-78); Ex. 17 (KWKA00452740-43); Ex. 19 (KWKA00452634-37); Ex. 84 (KWKA00452616-20); Ex. 86 (KWKA00452634-37); Ex. 89 (KWKA00452677-78).

While Goodrich also produced other motors, such as the ASP, RTV, Atmos and spherical motors, these motors were produced on a very small scale and were mainly for research and development purposes. Wever Dec. ¶ 10, 11, 12; Sachara Dec. ¶ 3, 15; Graham ¶ 4. It is unclear the exact number of these motors produced at Goodrich, but there is no evidence that any significant numbers were produced. Wever Dec. ¶ 10, 11, 12. Moreover, other than the Atmos and spherical motors, there is no evidence that the propellant used in these motors contained ammonium perchlorate. Wever Dec. ¶ 10, 11, 12; *see also* Graham Dec. ¶ 4.

In total, Goodrich produced well-under one thousand production rocket motors at its Rialto facility. Merrill Dec. ¶ 20, 25, Ex. A. Based on the relatively small size of these motors, the total amount of propellant burned at Goodrich's Rialto facility is less than 12,000 pounds. Merrill Dec. ¶ 20-23, Ex. A. Dr. Claude Merrill, an expert in the field of rocket manufacturing who has worked for the United States Air Force since 1966 at the Edwards Rocket Site, has visited numerous government contractor facilities where propellant was manufactured and tested. Merrill Dec. ¶ 1-4. It is Dr. Merrill's opinion that the amount of propellant produced at Goodrich is far less than many other rocket facilities during this time (facilities the Advocacy Team claims are similar to that of Goodrich's Rialto facility). *See* Merrill Dec. ¶ 24 ("Based on my knowledge of other rocket production facilities, including that of Thiokol, Hercules, Aerojet, United Technologies, and Atlantic Research Corporation, it is my opinion that the Goodrich

operation in Rialto, California, in comparison to these other solid rocket manufacturers, was a very small operation. . . . Total Goodrich production estimate of solid rocket propellant at the Rialto plant was much less than 45,700 pounds; this total amount is about what was put into one Minuteman Stage 1 motor in 1961 (the Minuteman Stage 1 motor contained approximately 45,000 pounds of solid propellant).").

2. The Production of Propellant at Goodrich in Rialto, California

The entire propellant production process at Goodrich's facility in Rialto, California took place indoors, including the lining of the motor casing, the oxidizer processing, the mixing of propellant, loading the propellant into rocket motors, curing the rocket propellant, and delivering finished products to the government. Wever Dec. ¶ 16-39.

The first stage in the process involved the lining of rocket motors themselves and took place inside the liner building. Wever Dec. ¶ 16. The lining process involved applying a layer of the binder system mixed with carbon black to the inside of the motor casing. Wever Dec. ¶ 16; Willis Dec. ¶ 4. This process did not require the use of ammonium perchlorate or solvent. *Id.* Upon completion of this process, the motor casings were taken to the casting/curing building. *Id.*

Before the propellant was mixed, the oxidizer was processed by the grinding, blending, and drying of the oxidizer. Goodrich had a very specific procedure regarding the handling of oxidizer at the Rialto facility, and in an effort to contain the small amounts of fugitive materials produced during the processing, all of the oxidizer was processed in a single building. Wever Dec. ¶ 17-26; *see also* Willis Dec. ¶ 5. A portion of the oxidizer, approximately 25%, was ground to produce a smaller particle size to achieve a specific burn rate. Wever Dec. ¶ 22-23. To grind the oxidizer, Goodrich used a small, laboratory sized hammermill. *Id.* During the grinding process, a screen and dust bag were used to minimize the amount of fugitive emissions. *Id.* After the grinding process, the ground oxidizer was placed into a drying oven. Wever Dec. ¶ 24; Willis Dec. ¶ 5. Once the ground oxidizer was dried, the ground and un-ground oxidizer was blended together in a V-shell blender. *Id.* After the blending process was completed, the

processed oxidizer was transported to the mixing building. Wever Dec. ¶ 24.

After the ingredients were transported to the mixing building, the oxidizer was placed into a mixer along with the other propellant ingredients according to a specific "recipe" and specified sequence. Wever Dec. ¶ 27. The transfer of the oxidizer from the transfer vessel into the mixer was a clean and dustless procedure. *Id.* ¶ 29. Indeed, the entire mixing process did not result in any fugitive emissions of chemicals. Wever Dec. ¶ 30. After a batch of propellant was mixed, the uncured propellant was transferred to a transfer vessel and taken to the casting and curing building on a wheeled cart. Wever Dec. ¶ 30, 34; Willis Dec. ¶ 8.

For most of Goodrich's operations, a 100 gallon mixer and 25 gallon mixer was used in the production process. Wever Dec. ¶ 28; Sachara Dec. ¶ 5; Ustan Dec. ¶ 11. Towards the very end of Goodrich's tenure, a new 150 gallon mixer building was constructed. Sachara Dec. ¶ 5. Due to the sudden cancellation of the Sidewinder production contract, this 150 gallon mixer was used at most on one occasion. Sachara Dec. ¶ 5.

The casting and curing building consisted of one room with four separate curing pits (or ovens). Wever Dec. ¶ 34-35. The propellant was loaded into the motor casings from the transfer vessel by gravity through a funnel. Wever Dec. ¶ 36. Once the motor casing was full, the funnel valve was closed and moved to the next motor casing to be loaded. *Id.* There were no fugitive emissions during the process of transferring the propellant from the transfer vessel to the motor casing. *Id.* After the casting process, a mandrel was placed in the motor casing. Wever Dec. ¶ 38. The propellant was then allowed to cure for a specific period of time at a specific temperature to allow the propellant to harden in the motor casing. Wever Dec. ¶ 39. Once the propellant was cured and the motors had cooled, the motors were removed from the curing pits and any tooling, including the mandrel, was removed. *Id.*

After the curing process, a very small amount of propellant was trimmed from the motor casing. Wever Dec. ¶ 40 ("Because the tooling was designed to minimize the

amount of hand trimming, very little trimming was necessary, I am confidant that it was less than 1/10% of the total material loaded into the motor."); Willis Dec. ¶ 10; Beach Dec. ¶ 5; Sachara Dec. ¶ 11; Haggard Dep., 74:19-77:7; Bland Dec. ¶ 8 ("It is my best estimate that less than half a pound of cured propellant was trimmed from each Loki motor."); Ustan Dec. ¶ 12. Due to the design of the tooling utilized by Goodrich, very little trimming was actually necessary. Wever Dec. ¶ 40; Beach Dec. ¶ 5; Haggard Dep., 74:19-77:22. Indeed, with respect to the Sidewinder rocket motor, there was little or no trimming necessary. Wever Dec. ¶ 40; Beach Dec. ¶ 5; Sachara Dec. ¶ 11. All propellant trimmings were placed in a combustible container for later transport to the burn pit for burning. Wever Dec. ¶ 40; Beach Dec. ¶ 5; Willis Dec. ¶ 10; Sachara Dec. ¶ 11; Bland Dec. ¶ 8; Ustan Dec. ¶ 12.

The buildings utilized in the production process were built in such a fashion to ensure that emissions, if any, were self contained within the building. Wever Dec. ¶ 20. The small amount of waste generated in the production process was all sent to the burn pit and burned. Beach Dec. ¶ 4, 11; Sachara Dec. ¶ 9; Wever Dec. ¶ ¶ 26, 31, 32, 37, 40; Ustan Dec. ¶ 8. The buildings utilized for the oxidizer processing were fully enclosed and were cleaned after use by sweeping material off the floor and wiping down equipment. Wever Dec. ¶ 23-26. All excess oxidizer (including any sweepings and the rags used to clean the equipment), scrap propellant and spent solvent were collected, placed in combustible containers, and sent to the burn pit for disposal. Wever Dec. ¶ 23-26, 31, 32. Any remaining propellant in either the transfer vessel or the mixer was removed using beryllium spatulas and placed into combustible containers for later transport to the burn pit for burning. Wever Dec. ¶ 31-32; Willis Dec. ¶ 7; Haggard Dep., 40:11-46:11. The mixer and transfer vessel were then cleaned with solvent. *Id.* The spent solvent and/or rags containing spent solvent were then placed in combustible containers for later transport to the burn pit for burning. Wever Dec. ¶ 31-32; Willis Dec. ¶ 7.

Goodrich did not produce propellant on a daily basis, instead, it was produced on

an as needed basis, dictated by the production schedule. Wever Dec. ¶ 42; Beach Dec. ¶ 6; Haggard Dep., 151:5-20, 156:17-157:23, 199:2-22. Former Goodrich employees testified that propellant was not mixed several times per week. Wever Dec. ¶ 42.

3. For the Most Part, Goodrich Operated a Research & Development Facility in Rialto

Much of Goodrich's operations in Rialto, California involved the research and development of different propellant formulations. While ammonium perchlorate was a common oxidizer used in these experimental propellants, it was not the only oxidizer used. Sachara Dec. ¶ 4. The mixing of propellant for research and development purposes was similar to that of propellant made for production purposes, but on a much smaller scale. Wever Dec. ¶ 43; Graham Dec. ¶ 4.

Also, as part of research and development, the researchers and lab technicians conducted various tests on the properties of the propellant, including strand burning tests and tensile strength tests. Shook Dep., 19:2-22 (heat combustion test and specific gravity test); Morris Dep., 20:8-21:10 (strand burning test); Holtzclaw Dec ¶ 3; *see generally* Graham Dec. ¶ 4; Ustan Dec. ¶ 3-4. These tests did not create a significant amount of waste. Shook Dep., 31:2-19, 47:1-8; Morris Dep., 31:11-33:2. Any waste propellant and oxidizer that was created during the research and development process was disposed of by burning in the burn pit. Graham Dec. ¶ 5; Sachara Dec ¶ 3, 9; Wever Dec. ¶ 43; Morris Dep., 31:11-33:2.

4. Static Test Firing Bay

As part of both its production and research and development operations, Goodrich used a static test bay to test fire motors several times a week – test firings did not occur every day. Staton Dep., 38:20-21; Garee Dep., 157:5-23; Wever Dec. ¶ 50-52; Graham Dec. ¶ 7. Most of the motors tested were small research and development motors, designed to test experimental propellant. Staton Dep., 38:22-24; Wever Dec. ¶ 43, 50; Graham Dec. ¶ 4. However, one motor from each batch of production rockets were tested in the static test bay. Wever Dec. ¶ 50.

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After a static test firing was completed, the propellant was completely burned, meaning no propellant remained inside the motor casing or on the ground around the static test bay. Sachara Dec. ¶ 8; Graham Dec. ¶ 7; Wever Dec. ¶ 52; Staton Dep., 36:5-29, 75:5-16; Garee Dep., 25:4-25, 33:5-20, 47:2-9, 277:6-16, 279:2-17, 285:2-13; Haggard Dep., 122:14-123:14; Morris Dep., 44:3-46:7; Ustan Dec. ¶ 10. No water was used in connection with the testing of rocket motors at the test bay. Sachara Dec. ¶ 8; Graham Dec. ¶ 7; Willis Dec. ¶ 18; Wever Dec. ¶ 52; Staton Dep., 26:1-8, 36:15-20.

The static test firing bay is not a disposal site, despite allegations to the contrary by the Advocacy team. As confirmed by the repeated testimony of former Goodrich employees, the test firing of research and development motors and production motors did not generate any waste because ***all of the propellant was consumed in the test firing***. Sachara Dec. ¶ 8; Graham Dec. ¶ 7; Wever Dec. ¶ 52; Staton Dep., 36:5-14, 75:5-16; Garee Dep., 25:4-25, 33:5-20, 47:2-9, 277:6-16, 279:2-17, 285:2-13; Haggard Dep., 122:14-123:14; Morris Dep., 44:3-46:7. Moreover, it is the opinion of Dr. Claude Merrill, who has conducted motor test firings over decades, that "once a high ammonium perchlorate concentration, solid propellant motor is ignited, the propellant completely burns" and that "there would be no scrap propellant remaining after igniting a motor in the Goodrich static test firing bay, even if there was a 'failure' of the motor itself." Merrill Dec. ¶ 16.

5. Goodrich Disposed of All Propellant Waste in a Single Burn Pit

Despite the Advocacy Team's allegations to the contrary, the Goodrich plant in Rialto contained a ***single burn pit*** – this fact is confirmed by the testimony of numerous former Goodrich employees, including Mr. Lou Staton, the former supervisor of the burn pit. Wever Dec. ¶ 53; Graham Dec. ¶ 5; Willis Dec. ¶ 19; Beach Dec. ¶ 11; Sachara Dec. ¶ 9; Staton Dep., 21:25-22:1, 27:4-14; Garee Dep., 83:2-87:9; Hernandez Dec. ¶ 7; Ustan Dec. ¶ 8; s*ee also*, Bennett Dec. ¶ 16. The testimony of former employees confirms that Goodrich's one burn pit was located near the static test firing stand. Sachara Dec. ¶ 9; Wever Dec. ¶ 53; Beach Dec. ¶ 11.

As confirmed by Mr. Dwight Wever, the former safety engineer responsible for setting the burn pit procedures, and consistent with industry and government standards at that time, Goodrich required that "[a]ll oxidizer waste, including ammonium perchlorate, and propellant waste generated at the Rialto plant was disposed of in the burn pit, without exception. In addition, all spent solvent and rags used with solvent were disposed of in the burn pit, without exception." Wever Dec. ¶¶ 53-54; Ex. 118 (Ordnance Manual, ORD-M 7-224, § 27); Ex. 117 (Explosives Manual, TO 11A-1-34); Ex. 50 (Destruction Manual TM9-1903); Ex. 110 (1956 Safety Procedures); *see also* Sachara Dec. ¶ 12; Graham Dec. ¶ 5; Willis Dec. ¶ 7; Beach Dec. ¶¶ 4-5, 11.

The frequency of the burns was based on the production schedule; in other words, a burn was conducted after each batch of propellant was manufactured. Wever Dec. ¶ 60. Material placed in the burn pit was burned immediately; no scrap was left outside or in the burn pit overnight, or for extended periods of time. Wever Dec. ¶ 55; Willis Dec. ¶ 19; Staton Dep., 57:2-58:8, 63:6-16; Garee Dep., 83:2-87:18; Hernandez Dec. ¶ 7; Ustan Dec. ¶ 8. The burn pit was never rinsed with water, and burns did not occur during rainy or windy conditions. Wever Dec. ¶¶ 57-60; Staton Dep., 26:1-15.

Material to be burned was placed in cardboard containers and then transferred to the burn pit in push carts. Wever Dec. ¶¶ 26, 31, 32, 37, 40, 55. These containers were carefully stacked into the burn pit in a very specific order. Wever Dec. ¶ 56. First, the combustible containers of excess propellant from the mixer along with the minimal trimmings were placed into the burn pit, then any excess oxidizer (again contained in combustible containers) was placed into the burn pit, and last, any rags or any solvent containing propellant or oxidizer (along with any dust masks or gloves worn by Goodrich operators) was placed on top. Wever Dec. ¶ 56. The burn was ignited through the use of a remote igniter operated by a battery from the test stand. Wever Dec. ¶ 58.

As would be expected given the nature of rocket propellant, the material burned very fast and very hot. Wever Dec. ¶ 58; Graham Dec. ¶ 6. No material remained in the burn pit after a burn. Wever Dec. ¶ 58; Beach Dec. ¶ 11; Willis Dec. ¶ 19; Graham Dec.

¶ 6; Staton Dep., 25:23-25, 98:4-7, 98:11-25; Garee Dep., 190:2-193:8, 270:1-11.

Because of the manner in which Goodrich's propellant related waste was handled, virtually all of it (including the oxidizer and spent solvent) was consumed in the fire, and thus not discharged into the environment. Recent tests performed by an expert in chemical engineering have shown that propellants burned in a burn pit, such as the one used by Goodrich, produce virtually undetectable concentrations of perchlorate in the residual ash. Oxley Dec. ¶ 12-14. Dr. Jimmie Oxley, a Professor of Chemistry at the University of Rhode Island and Co-Director of the Forensic Science Partnership, conducted numerous burns using propellant formulations similar to those used by Goodrich, and concluded that the percentage of perchlorate remaining (out of the original propellant burned) was only 0.002%. Oxley Dec. ¶¶ 1, 12. These tests clearly show that burning is an extremely efficient means to dispose of perchlorate containing wastes and that Goodrich did not discharge perchlorate into the soil or groundwater through its use of a burn pit at its Rialto facility.

6. There is No Evidence that Goodrich Used Trichloroethylene

Despite the multiple assertions and assumptions made by the Advocacy Team, there is no evidence that Goodrich used Trichloroethylene ("TCE") at its Rialto facility. Indeed, several former Goodrich employees affirmatively testified that ***TCE was not used*** in any part of Goodrich's operations in Rialto. Haggard Dep., 54:10-23 ("Q. Do you recall there ever being an instance where you used a chemical called trichloroethylene to clean the mixers? A. Not to my knowledge."); Garee Dep., 122:6-123:18; Morris Dep., 39:3-25 ("Q. Are you familiar with a solvent called trichloroethylene? A. Yes. Used that in the Air Force. Q. Did you ever use trichloroethylene at the Goodrich facility? A. No."); Shook Dep., 29:2-19; Holtzclaw Dec. ¶ 9 ("I recall that acetone was used at the Rialto facility to clean the carriages where propellant was cured. I do not recall any other solvent being used at the facility. I do not recall ever seeing Trichloroethylene or hearing of any employees using Trichloroethylene at the facility."); Willis Dec. ¶ 13 ("During the entire length of my employment at

Goodrich, I never used and I did not see other employee[s] use trichloroethylene at Goodrich's Rialto facility."); Hernandez Dec. ¶ 3 ("To my knowledge, only MEK and acetone were stored at Goodrich. I do not recall the solvent trichloroethylene ever being stored at Goodrich."); Bland Dec. ¶ 10.

The only witness the Advocacy Team relies upon to establish that Goodrich used TCE is Mr. Dwight Wever, but Mr. Wever, after careful reflection, testified that he cannot recall what type of solvent was used at the Goodrich facility in Rialto:

> I am aware that a solvent was used to clean the mixing equipment, but at this time I have no recollection of the specific solvent used in this process.

Wever Dec. ¶ 32. Indeed, Mr. Wever, cannot identify exactly what type of solvent was used for any cleaning purpose at Goodrich. Wever Dec. ¶ 32. Simply stated, the Advocacy Team cannot cite to one piece of evidence, either documentary or testimonial, to support the assertion that Goodrich used or disposed of TCE at its Rialto facility. *See* Haggard Dep., 54:10-23; Garee Dep., 122:6-123:18; Morris Dep., 39:3-21; Shook Dep., 29:2-19; Holtzclaw Dec. ¶ 9; Willis Dec. ¶ 13; Wever Dec. ¶ 32; *see also* Sachara Dec. ¶ 10; Beach Dec. ¶ 4; Graham Dec. ¶ 8.

7. Safety

Continuously throughout its tenure in Rialto, California, Goodrich required that all employees follow safety procedures to not only protect the employees from risk of injury but also to comply with the government and industry standards of the time. Wever Dec. ¶¶ 6, 54. Mr. Dwight Wever, the former safety engineer at Goodrich's Rialto facility, personally ensured that all employees obtained the requisite safety training for the safe handling of propellant and hazardous materials. *Id.* Goodrich's dedication to safety is evidenced by the facility's outstanding safety record – no major explosion or fire occurred during Goodrich's tenancy. Wever Dec. ¶ 62; Graham Dec. ¶ 13; Willis Dec. ¶ 20; Holtzclaw Dec. ¶ 5; Haggard Dep., 38:25-39:8; Ustan Dec. ¶ 6.

All waste propellant and oxidizer was managed pursuant to the safety regulations. Wever Dec. ¶ 54. Testimony of numerous former Goodrich employees confirms that for

safety reasons, propellant, oxidizer, or solvent was never left laying on the ground at the facility or buried on the site. Sachara Dec. ¶ 6; Holtzclaw Dec. ¶¶ 10-12; Graham Dec. ¶¶ 9-11; Beach Dec. ¶ 8; Willis Dec. ¶ 20; Shook Dep., 30:10-14, 53:2-60:6; Staton Dep., 15:5-17:23; Garee Dep., 79:1-23, 79:1-23; Morris Dep., 36:6-38:24; Haggard Dep., 36:6-38:24; Wever Dec. ¶¶ 63-66; Hernandez Dec. ¶¶ 5-7; Bland Dec. ¶¶ 10-11; Ustan Dec. ¶¶ 6,8.

Despite the Advocacy Team's assertions to the contrary, there is not one piece of evidence establishing that Goodrich buried any material in the area referred to as "D-1" in the southern portion of Goodrich's former facility. Not one witness has testified that Goodrich buried any waste propellant there; indeed, to the contrary, former Goodrich employees unanimously agree that Goodrich never buried waste propellant. Sachara Dec. ¶ 6; Holtzclaw Dec. ¶¶ 10-12; Graham Dec. ¶¶ 9-11; Beach Dec. ¶¶ 8-9; Willis Dec. ¶ 20; Shook Dep., 30:10-14, 53:2-60:6; Staton Dep., 15:5-17:23; Garee Dep., 79:1-23; Morris Dep., 36:6-38:24; Haggard Dep., 36:6-38:24; Wever Dec. ¶ 61; Hernandez Dec. ¶ 6. The Advocacy Team cannot point to one historical document establishing that Goodrich buried any waste propellant. The only "evidence" the Advocacy Team can point to is a historical, aerial photograph showing that Revetment O-1 (as named by the Rialto Ammunition Storage Point) was "modified" during Goodrich's years of operations. Ad. Team P&As, 94. This simple fact does not establish that Goodrich buried anything in that vicinity. Indeed, any such practice would have violated Goodrich's safety procedures, the applicable government regulations and was not the industry practice at the time – every former Goodrich employee testified that these procedures were ***always*** followed at the facility.

8. Closure of the Goodrich Plant

Shortly after Goodrich began production of the Sidewinder motor, in November of 1962, Mr. Dwight Wever (the project manager for the Sidewinder) discovered cracks in the propellant grain of the Sidewinder motors. Wever Dec. ¶ 46; Ex. 12 (KWKA00452713); Ex. 13 (KWKA00452702). Upon discovering this problem, all

production of the Sidewinder motor was stopped and ultimately Goodrich lost its contract with the United States Navy. Wever Dec. ¶ 46; Ex. 98 (KWKA00452749); Ex. 15 (KWKA00452767). However, Goodrich was required to return the Sidewinder motor casings to the Navy – meaning that Goodrich was required by the Navy to remove the cracked propellant from these casings and return them to the government. Wever Dec. ¶ 47.

In order to remove the cracked propellant from the Sidewinder casings, Goodrich developed a cutting tool and stand that was designed to auger the cured propellant out of the motor casing. Wever Dec. ¶ 47; Haggard Dep., 113:2-121:25, 210:5-213:9; Bland Dec. ¶ 9. Once the propellant was augured out of the casing, the casing was cleaned with rags and solvent to clean any remaining propellant and/or liner from the casing. Wever Dec. ¶ 47; Bland Dec. ¶ 9. No water was used to remove propellant from the Sidewinder casing during the auguring process. Wever Dec. ¶ 47; Haggard Dep., 211:25-213:11. All of the removed propellant, any rags, and any spent solvent was placed in combustible containers and sent to the burn pit for burning. Wever Dec. ¶ 47; Bland Dec. ¶ 9.

Former Goodrich employees, such as Mr. Jimmie Haggard, who actually assisted in this process and witnessed the removal process first hand, agree that ***at no time*** was any of the propellant removed from the Sidewinder casings thrown or left on the bare ground.

Mr. Dintzer:	Did you ever observe any scrap propellant laying on the ground when you came by [the Sidewinder salvage area] either to work or after you had left or just incidentally being there?
Mr. Haggard:	No.
Mr. Dintzer:	Did you ever hear that anybody had complained about the dumping of scrap propellant on the ground?
Mr. Haggard:	No.
Mr. Dintzer:	Did you ever hear of anybody complaining about the dumping of solvent on the ground?

Mr. Haggard: No.

Haggard Dep., 119:23-120:8; *see also* Haggard Dep., 119:4-8 ("Q. If someone said that there was scrap propellant laying all over the ground as this process was going on, the removal of propellant from the Sidewinders, would that statement be untrue? A. Yes."); *see also* Wever Dec. ¶ 47 ("I did not observe any of the propellant removed from the casings or solvent used spilled on the ground."). Moreover, at no time was any solvent used during this removal process ever dumped and/or spilled on the bare ground. Wever Dec. ¶ 47; Haggard Dep., 119:9-13, 120:6-8.

As a result of the problems encountered with the Sidewinder motors, Goodrich lost its contract with the United States Navy and ultimately was forced to close its Rialto facility. By May of 1963, the Navy was looking for another contractor to complete the Sidewinder project. Ex. 98 (KWKA00452749-57). Goodrich never obtained another contract from the United States government and by July of 1963, just seven months after discovering the cracks in the Sidewinder, Goodrich lost the Sidewinder contract, and was forced to begin closing its Rialto facility. Ex. 15 (KWKA00452767-78); *see also* Wever Dec. ¶ 48.

B. Goodrich's Operations in Rialto, California Did Not Result in Any Discharges to the Groundwater

The Advocacy Team's Memorandum of Points and Authorities is glaringly devoid of any evidence establishing that Goodrich's operations in Rialto, California resulted in a discharge to the groundwater in the Rialto/Colton groundwater basin. Pursuant to California state law, the Advocacy Team bears the burden of proving that Goodrich contaminated the groundwater, or that Goodrich threatens to contaminate the groundwater. But, the Advocacy Team has provided no evidence that any perchlorate used by Goodrich in its operations has actually contaminated, or threatens to contaminate, the groundwater in the Rialto/Colton basin. Instead, the Advocacy Team alleges only that Goodrich used perchlorate in its former operations and that the groundwater in the Rialto/Colton basin is contaminated with perchlorate. Ad. Team

P&As, 62-79. The Advocacy Team then leaps to the conclusion that the contamination in the Rialto/Colton basin must be from Goodrich's operations, at least in part. Ad. Team P&As, 93-109. The Advocacy Team admits that it does not know whether the perchlorate contamination in any given well or soil sample is actually from Goodrich's operations. Saremi Dep., 305:6-19, 307:15-308:13, 455:22-459:18, 656:19-24; Sturdivant Dep., 627:1-11, 646:20-647:4, 649:2-22; 651:17-652:9, 717:15-23; Holub Dep., 933:8-23, 934:2-15, 935:2-5, 93:10-15, 984:25-985:4, 985:18-21, 988:20-23.

More importantly, by ignoring this critical link in establishing actual contamination (or threatened contamination), the Advocacy Team fails to consider the transport mechanism necessary for any perchlorate to travel through the approximately 400 feet vadose zone and reach groundwater. Kresic Dec. ¶ 54. Due to the lack of water used in Goodrich's operations, the vertical transport of perchlorate through the approximately 400 foot thick vadose zone could only have been driven by the natural infiltration of rainwater. Kavanaugh Dec. ¶¶ 27-28; Kresic Dec. ¶ 18. Given that the climate in Rialto, California is arid (the 50-year average rainfall is approximately 15.4 inches of rain per year), the natural infiltration is insufficient to carry residual perchlorate through the vadose zone to a depth where groundwater is present. Kresic Dec. ¶¶ 24-25, 54; Kavanaugh Dec. ¶ 29. Dr. Nevin Kresic, a hydrogeologist and modeling expert, has developed and ran models of the vadose zone underneath the property in Rialto, California. Kresic Dec. ¶ 20. Dr. Kresic's results demonstrate that if there were any residual perchlorate from Goodrich's operations it would have never reached the groundwater in the Rialto/Colton groundwater basin. Kresic Dec. ¶¶ 25, 52.

The Advocacy Team points to four potential sources of perchlorate contamination from Goodrich's former operations: (1) Goodrich's burn pit; (2) Goodrich's production process (including a 150-gallon mixer); (3) the static test firing bay; and (4) the sidewinder salvaging process. However, the overwhelming evidence establishes that if there were any potential perchlorate discharges from these operations, they were miniscule at best and thus never reached the groundwater nor threatens to reach

groundwater in the Rialto/Colton basin.

1. Goodrich's Burn Pit is NOT a Source of Perchlorate Contamination

It is undisputed that Goodrich ***burned*** its solid rocket propellant waste in a burn pit – former Goodrich employees unanimously testified to this fact and the Advocacy Team admits this in the Draft Cleanup and Abatement Order. *See* Wever Dec. ¶¶ 53-54; Sachara Dec. ¶ 12; Graham Dec. ¶ 5; Willis Dec. ¶ 7; Beach Dec. ¶¶ 4-5; Draft CAO, 33(j). The evidence also conclusively shows that Goodrich was ***required*** to incinerate waste ammonium perchlorate and solvent contaminated with propellant in a burn pit. Ex. 118 (Ordnance Manual, ORD-M 7-224, § 27); Ex. 117 (Explosives Manual, TO 11A-1-34); Ex. 50 (Destruction Manual TM9-1903); Ex. 110 (1956 Safety Procedures).

Importantly, the overwhelming testimony of former Goodrich employees establishes that after a burn ***nothing remained in the burn pit***. Wever Dec. ¶ 58; Beach Dec. ¶ 11; Willis Dec. ¶ 19; Graham Dec. ¶ 6; Staton Dep., 25:23-25, 98:4-7, 98:11-25; Garee Dep., 190:2-193:8, 270:1-11. This firsthand knowledge is corroborated by tests performed by a leading expert in chemical engineering, Dr. Jimmie Oxley, which confirm that propellants burned in a burn pit, such as the one used by Goodrich, are completely consumed and that the levels of perchlorate remaining in the residual ash are virtually undetectable at approximately 0.002%. Oxley Dec. ¶¶ 12-14. The fact that Goodrich also burned oxidizer and spent solvent in its burn pit does not change this conclusion; indeed, "any additional oxidizer, such as ammonium perchlorate, only makes the burn cleaner." Oxley Dec. ¶¶ 13. Moreover, Dr. Merrill, an expert in the industrial practices of rocket facilities, conservatively estimates that Goodrich destroyed approximately 9,599 pounds of ammonium perchlorate (much of which was contained in scrap propellant) by burning, during the entire length of Goodrich's operations. Merrill Dec., Ex. A. Even with this conservative estimate of the amount of perchlorate burned, less than one pound of perchlorate remained in the residual ash after burning. *See* Merrill Dec., Ex. A; Oxley Dec. ¶¶ 13-14; Kavanaugh Dec. ¶ 23.

This minute amount of perchlorate is clearly insignificant given the extent of perchlorate contamination in the Rialto/Colton Groundwater Basin. Kavanaugh Dec. ¶ 90. Moreover, regardless of the mass of residual perchlorate left after burning, modeling of the vadose zone underlying the burn pit clearly demonstrates that the burn pit cannot be a source of perchlorate contamination in groundwater. Kresic Dec. ¶¶ 24-25, 52. Thus, the scientific evidence conclusively establishes that because all of Goodrich's waste propellant was disposed of by burning, Goodrich's burn pit is not a source of perchlorate contamination in the Rialto/Colton groundwater basin. Oxley Dec. ¶¶ 12-14; Kavanaugh Dec. ¶ 92; Kresic Dec. ¶ 52.

2. Goodrich's Production Process is NOT a Source of Perchlorate Contamination

As indicated above, the testimony of all the former Goodrich employees collectively confirms that all propellant waste (including oxidizer waste) from Goodrich's production processes was sent to the burn pit to be burned. As stated above, the burn pit itself is not a source of contamination. And, as discussed above, there is no evidence that any significant quantities of perchlorate were discharged during the production process itself. Even if minimal amounts of perchlorate were released to the environment (in the form of incidental mop water), the quantity released would not provide a sufficient transport mechanism for that perchlorate to travel through the vadose zone and reach groundwater. Kavanaugh Dec. ¶¶ 34, 95.

The Advocacy Team relies heavily on the use of a "150 Gallon Mixer" by Goodrich as a source of perchlorate contamination. But the available evidence shows that this "larger," 150-gallon mixer was installed during the end of Goodrich's operations and was either never used or only used on one occasion. Sachara Dec. ¶ 5. And the Advocacy Team cites no evidence, because there is not any, that indicates that Goodrich's brief use of that mixer would have resulted in any release of perchlorate. The minimal usage of this mixer and absence of any evidence indicating a release of perchlorate or the application of the large amount of water necessary to transport perchlorate through the

vadose zone to groundwater, leads to the conclusion that Goodrich's operation in the area of the former 150-gallon mixer has not resulted in contamination of the groundwater. Kavanaugh Dec. ¶ 33.

3. Goodrich's Former Static Test Bay is NOT a Source of Perchlorate Contamination

The evidence establishes that the static test firing bay is not a source of perchlorate contamination. Both the testimony of former Goodrich employees and expert testimony confirm that no scrap propellant remained in either the static test firing bay or the motor casing after a test firing. Sachara Dec. ¶ 8; Graham Dec. ¶ 7; Wever Dec. ¶ 52; Staton Dep., 36:5-20, 75:5-16; Garee Dep., 25:4-25, 33:5-20, 47:2-9, 277:6-16, 279:2-17, 285:2-13; Haggard Dep., 122:14-123:14; Morris Dep., 44:3-46:7; Merrill Dec. ¶¶ 16, 29; Oxley Dec. ¶¶ 12-14. As indicated above, the burning of rocket propellant is highly efficient (particularly when contained under pressure in a motor casing); thus, perchlorate in any resulting ash from the test firing of rocket motors at Goodrich would be virtually undetectable. Oxley Dec. ¶¶ 12-14. Again, such a minute amount of perchlorate remaining in ash (0.002%) is not a likely source of perchlorate in the Rialto/Colton groundwater basin. Kavanaugh Dec. ¶ 35. Even if minimal amounts of perchlorate were released to the environment in the form of ash, there is no evidence that the substantial amounts of water necessary to transport perchlorate through the vadose zone to groundwater were present at the test bay. Sachara Dec. ¶ 8; Graham Dec. ¶ 7; Willis Dec. ¶ 18; Wever Dec. ¶ 52; Staton Dep., 26:1-8. Absent large amounts of water, there is no mechanism for any residual perchlorate to reach the groundwater through the approximately 400 feet of vadose zone. Kavanaugh Dec. ¶ 35.

4. The Salvaging of Sidewinder Motor Casings is NOT a Source of Perchlorate Contamination

The available credible testimony of former Goodrich employees, and the testimony of a propellant manufacturing expert, confirms that no water was used in the Sidewinder salvaging process and that all scrap propellant was disposed of by burning in

the burn pit. Wever Dec. ¶¶ 45, 47; Haggard Dep., 211:25-213:11; Merrill Dec. ¶ 19. Because no water was used in the removal process, the only transport mechanism for any incidental discharge of perchlorate (if any even occurred) is natural rainfall. Kavanaugh Dec. ¶ 32. This natural infiltration is insufficient to carry any residual perchlorate through the entire vadose zone. Kavanaugh Dec. ¶ 32. Therefore, both the eyewitness testimony and scientific evidence demonstrate that the salvaging process did not result in any perchlorate contamination in the groundwater beneath the Property. Kavanaugh Dec. ¶¶ 32, 94.

5. Goodrich's Former Operations are NOT a Source of TCE Contamination

Goodrich's former operations are not a source for any TCE contamination in the Rialto/Colton groundwater basin. There is absolutely no credible documentary or testimonial evidence that Goodrich used or disposed of TCE at its Rialto facility. Instead, the testimony of former Goodrich employees indicates that Goodrich more likely used acetone, cyclohexanone, and/or MEK for cleaning purposes. Haggard Dep., 54:10-23; Garee Dep., 122:6-123:18; Morris Dep., 39:3-25; Shook Dep., 29:2-19; Holtzclaw Dec. ¶ 9; Willis Dec. ¶ 13; Wever Dec. ¶ 32; *see also* Sachara Dec. ¶ 10; Beach Dec. ¶ 4; Graham Dec. ¶ 8; Bland Dec. ¶ 9-10. Finally, TCE to reach the groundwater it would require the disposal of an extremely large amount of the pure solvent to overcome the residual capacity of the vadose zone. Kavanaugh Dec. ¶ 39. There is no evidence of such a wide scale disposal of TCE by Goodrich, and in fact, the sampling data refutes it. Kavanaugh Dec. ¶ 38.

Moreover, the evidence establishes that any spent solvent (including rags) was burned in the burn pit. Wever Dec. ¶¶ 53-56. Because the spent solvent was disposed of in this manner, it is likely that it was completely consumed in the fire and not discharged to the environment. *See, e.g.*, Oxley Dec. ¶¶ 13-14. Sampling results from the former burn pit also confirm that the burn pit is not a source of TCE contamination at the property. Kresic Dec. ¶¶ 36-38, 53. Thus, there is no evidence that any solvent was

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discharged to the environment as a result of Goodrich's disposal practices, and the scientific evidence demonstrates that Goodrich's operations were not the source of any TCE detected in groundwater under the property.

C. The Advocacy Team Fails To Provide Any Evidence Establishing That Goodrich Discharged Any Ammonium Perchlorate or TCE to the Groundwater

1. The Advocacy Team Relies Almost Exclusively on the Testimony of Mr. Ronald Polzien

The Advocacy Team relies heavily on the testimony of a single witness, Mr. Ronald Polzien, and simply ignores the extensive testimony of other former Goodrich employees. The Advocacy Team's unwavering reliance on selected testimony of Mr. Polzien is seriously undermined upon a review of his entire deposition transcript (including the cross examination) and the credible testimony of other former Goodrich employees.

Stunningly, the Advocacy Team continues to rely upon Mr. Polzien's testimony even after his extensive contradictions were brought to light during the discovery process. Holub Dep., 290:18-291:3 (Mr. Holub concedes that Mr. Polzien provided contradictory testimony); Sturdivant Dep., 307:16-308:15, 317:16-320:17 (Ms. Sturdivant agrees that Mr. Polzien provided contradictory testimony). Even more alarming is Ms. Sturdivant's admission that the Advocacy Team relies heavily on Mr. Polzien's testimony, despite the fact that ***no one at the Regional Board recalls reviewing Mr. Polzien's complete deposition transcript***. Sturdivant Dep., 291:13-16, 667:23-668:7; Holub Dep., 246:22-247:2, 262:4-10, 276:8-278:17. A complete review of the cross examination of Mr. Polzien establishes that he either contradicts or simply retracts his prior testimony on virtually every salient point relied upon by the Advocacy Team and completely undermines Mr. Polzien's credibility as a witness in this proceeding.

For instance, early on in his deposition Mr. Polzien testified, under oath, regarding a conversation he had back in 1962 with Mr. Japs, who at the time was the technical manager at Goodrich and the mayor of Rialto. Mr. Polzien testified that:

> Mr. Japs was giving me a ride home . . . and he waved to . . . the new wellheads going in for the water company. . . . ***[A]t the time I was very concerned about solvents.*** I don't know that we were particularly happy with the water we were getting anyway, but solvents were on my mind. I had no knowledge of perchlorate and I reminded him in a few words do you realize that [Goodrich's] burn pit is directly in line with those wellheads?

Polzien Dep., 156:1-158:6 (emphasis added). Mr. Polzien stated that in response to his concerns about the drinking water Mr. Polzien received at his house, Mr. Japs simply dismissed him. Polzien Dep., 353:8-18. Then, after being confronted with the fact that he sold his house three years after his conversation with Mr. Japs, but he did not disclose being "very concerned" about Rialto's drinking water to the buyers of his home, Mr. Polzien retracted his sworn testimony and conceded that:

> At the time – I think we have gone over this many times that ***I was not concerned and I had no evidence***. . . . This house was sold in 1965. My objection to Mr. Japs – or my discussion with Mr. Japs occurred in 1962. I hope you take note that – of the time difference and that if ***I had really been concerned, I would have notified them***; and I would certainly have moved earlier.

Polzien Dep., 388:17-389:9 (emphasis added). Ms. Helie, the buyer of Mr. Polzien's house in 1965, later confirmed that, despite Mr. Polzien's repeated testimony that he was concerned about the groundwater in 1962, he never disclosed that to her when she purchased his house in 1965. Helie Dep., 78:10-21, 83:9-15, 91:13-21. When asked whether the Advocacy Team should so heavily rely upon the testimony of somebody who either lied to his home buyers, or lied under oath, Ms. Sturdivant answered "I don't know about what he did. . . . I think he was testifying under oath." Sturdivant Dep., 687:2-17.

The Advocacy Team relies heavily upon Mr. Polzien's testimony regarding the production processes utilized by Goodrich, including oxidizer processing, mixing, casting, curing, trimming, lining and finishing processes. Ad. Team P&As, 65-68. Yet, Mr. Polzien admits that he never worked in production at Goodrich and never witnessed the production process while employed at Goodrich:

- Mr. Polzien never saw the grinding, blending, weighing or drying of oxidizer at Goodrich. Polzien Dep., 587:25-588:20.
- Mr. Polzien never witnessed the mixing of propellant at Goodrich. Polzien Dep., 588:23-589:4.
- Mr. Polzien never saw the loading or curing of rocket motors at Goodrich. Polzien Dep., 589:14-592:15.
- Mr. Polzien never saw the trimming operation at Goodrich. Polzien Dep., 728:25-729:5.
- Mr. Polzien never witnessed the cleaning operations of any of the buildings or equipment used in the production process. Polzien Dep., 693:25-697:11, 456:16-19.

How can the Advocacy Team rely so heavily on the testimony of a former employee who has no firsthand knowledge on the topics for which they cite him? And, how can the Advocacy Team simply ignore the testimony of other former employees who actually worked in the production process and disagree with Mr. Polzien's uninformed testimony? The Advocacy Team never explains why it finds Mr. Polzien credible – never explains why it ignores these other witnesses, such as Mr. Haggard, Mr. Beach, Mr. Willis, and Mr. Wever who actually worked and/or supervised the production and cleaning processes, whose testimony contradicts Mr. Polzien – never explains why it continued to rely on Mr. Polzien even after it became clear at his deposition that he repeatedly gave false statements under oath. The Advocacy Team simply has nothing other than Mr. Polzien's uncorroborated testimony to support its reckless allegations.

The Advocacy Team also relies heavily on Mr. Polzien to provide support for the uncorroborated fact that ammonium perchlorate was used in all of the propellant produced at Goodrich. Ad. Team P&As, 69-75. Yet, Mr. Polzien testified that he did not have comprehensive knowledge regarding the use of ammonium perchlorate at the Goodrich facility:

- Mr. Polzien does not recall ever seeing ammonium perchlorate delivered to the Goodrich facility. Polzien Dep., 621:16-22.
- Mr. Polzien never saw the processing of ammonium perchlorate at Goodrich. Polzien Dep., 587:25-589:4.

- Mr. Polzien does not know the specific recipes with respect to any of the propellant produced by Goodrich. Polzien Dep., 686:16-687:1

The Advocacy Team cites Mr. Polzien's testimony to support its assertions regarding Goodrich's use of multiple burn pits at its Rialto facility. Ad. Team P&As, 76-78. However, even Mr. Polzien never testified that Goodrich operated more than one burn pit. In fact, to the contrary, Mr. Polzien testified that ***Goodrich only had one burn pit***. Polzien Dep., 289:6-10 ("Q. Was there only one burn pit utilized in the Goodrich facility? . . . A. As far as I know or my experience, there's only one."). At least on this point, Mr. Polzien's testimony is consistent with the testimony of every other former employee who said that Goodrich operated a single burn pit at the Rialto facility. Wever Dec. ¶ 53; Graham Dec. ¶ 5; Willis Dec. ¶ 19; Beach Dec. ¶ 11; Sachara Dec. ¶ 9; Staton Dep., 21:25-22:1, 27:4-14, Garee Dep., 83:2-87:18; Hernandez Dec. ¶ 7; Ustan Dec. ¶ 8. see *also* Bennett Dec. ¶ 16.

Moreover, although the Advocacy Team relies on Mr. Polzien to describe the operation of the burn pit, Mr. Polzien admitted that he never participated in the loading of Goodrich's burn pit and he only witnessed this process from the control room over 500 feet away. Polzien Dep., 799:18-20, 803:11-23, 823:9-18. If Mr. Polzien never participated in the loading of the burn pit and only witnessed this process from over 500 feet away, how is any of his testimony credible regarding the loading and use of the burn pit?

The Advocacy Team relies exclusively upon Mr. Polzien's testimony that Goodrich left propellant waste in the burn pit overnight. But the Advocacy Team neglects to inform the Hearing Officer that ***Mr. Polzien later admitted that propellant waste was never left in the burn pit overnight***. Compare Polzien Dep., 129:15-19 with Polzien Dep., 827:11-829:2. Indeed, numerous other former Goodrich employees, including Mr. Wever, Mr. Staton, Mr. Willis, and Mr. Garee confirm that no propellant waste was ever left in the burn pit overnight or, in fact, for any extended period of time. Wever Dec. ¶

55; Willis Dec. ¶ 19; Staton Dep., 57:2-58:8, 63:6-16; Garee Dep., 83:2-87:18; Hernandez Dec. ¶ 7; Ustan Dec. ¶ 8.

The Advocacy Team blindly relies upon Mr. Polzien's contradicted testimony regarding Goodrich's burn pit, yet never once cites to the testimony of Mr. Lou Staton, the former ***supervisor of Goodrich's burn pit***. If they had, it would be clear that selected portions of Mr. Polzien's testimony regarding Goodrich's burn pit relied upon by the Advocacy Team are simply false.

Predictably, the Advocacy Team also relies exclusively on Mr. Polzien's testimony regarding Goodrich's static test firing bay. Ad. Team P&As, 75. Again, a review of all of Mr. Polzien's deposition demonstrates that his testimony about the test bay was either erroneous or false, and the Advocacy Team's heavy reliance on it as dubious. For instance, Mr. Polzien initially testifies that water hoses were used to rinse out the static test bay. Polzien Dep., 207:7-14. But later on, Mr. Polzien testifies that water was never used in the static test bay and there was no source of water available at the test bay. Polzien Dep., 297:15-16. Again, numerous other former Goodrich employees reliably testify that water was never used at the static test firing bay. Sachara Dec. ¶ 8; Graham Dec. ¶ 7; Willis Dec. ¶ 18; Wever Dec. ¶ 52; Staton Dep., 26:1-8.

In addition, the Advocacy Team relies exclusively on Mr. Polzien for the proposition that propellant remained in the static test firing bay after a test firing. Ad. Team P&As, 75. This allegation is contradicted by the testimony of every other former Goodrich employee, who all consistently testify that after a static test firing was completed, the propellant was completely burned and no propellant remained inside the motor casing or on the ground around the static test bay. Sachara Dec. ¶ 8; Graham Dec. ¶ 7; Wever Dec. ¶ 52; Staton Dep., 36:5-20, 75:5-16; Garee Dep., 25:4-25, 33:5-20, 47:2-9, 277:6-16, 279:2-17, 285:2-13; Haggard Dep., 122:14-123:14; Morris Dep., 44:3-46:7.

An expert in the industrial practices of solid rocket manufacturing facilities who has "studied one atmosphere pressure (open air) burns for many polybutadiene binder,

ammonium perchlorate solid propellants chemically similar to Goodrich's propellant formulation" confirms that:

> All propellants containing ammonium perchlorate concentration of 68 weight percent or greater burned completely so that no residues remained except for aluminum oxide combustion product for aluminized solid propellant. This would be true for polysulfide binder-ammonium perchlorate propellants as well. In my experience when this type of solid rocket propellant was ignited it did not "self extinguish." Therefore, ***motors that were test fired in Goodrich's static test firing bay would burn completely and would not contain propellant after they were ignited***.

Merrill Dec. ¶ 29 (emphasis added).

Even the Advocacy Team appears to realize the limitations of Mr. Polzien's testimony because it does not rely upon Mr. Polzien's testimony regarding the use of TCE at the Goodrich facility. This is more than likely because Mr. Polzien admits that he does not know whether Goodrich used trichloroethylene or trichloroethane:

> Mr. Dintzer: Do you know whether or not the cleaning solvent that [Goodrich] used in the mixers and the other places where they had this solvent was trichloroethane or trichloroethylene?
>
> Mr. Polzien: I don't.
>
> * * *
>
> Mr. Dintzer: Do you know whether the solvent that made part of the slurry was trichloroethylene or trichloroethane?
>
> Mr. Polzien: In light of what you just told me and my ignorance between the two, I – I don't know.

Polzien Dep., 619:13-620:5.

Finally, the Advocacy Team relies heavily upon the testimony of Mr. Polzien regarding the Sidewinder salvage project undertaken by Goodrich. Ad. Team P&As, 78-79. Mr. Polzien testified, under oath, that propellant from these Sidewinders was strewn around the walkways and that he raised his concerns over this with Mr. Eugene Sachara, a manager at Goodrich. Polzien Dep., 1044:22-1045:13, 1029:13-1030:10. He testified further that Mr. Sachara wrote a letter to the production manager (Mr. Shields) insisting that the problem be corrected immediately. Polzien Dep., 153:2-

154:15. Mr. Sachara, whose credibility is not in doubt, testified that ***the events Mr. Polzien described never took place***:

> At no point during my employment at the Rialto facility did Mr. Polzien ever tell me that he was concerned about working around the test-firing area. He also never complained to me about the manner in which propellant was being removed from rocket casings. Despite, Mr. Polzien's assertions to the contrary, I never expressed concerns about the safety of removing propellant from rocket casings to Jack Shields orally or in writing. Furthermore, I never communicated to Jack Shields orally or in writing about the existence of scrap propellant on the ground at the Rialto facility.

Sachara Dec. ¶ 13. Moreover, the testimony of the former Goodrich employees actually involved in this salvaging process confirms that scrap propellant was never left remaining on the ground and that water was not used to assist in the removal of propellant from the motor casings. Haggard Dep., 119:4-8, 119:23-120:5, 211:25-213:11; Wever Dec. ¶¶ 45, 47.

The full record demonstrates that the credibility and reliability of Mr. Polzien's deposition testimony is non-existent, and thus his testimony should not be relied upon in any manner.

2. The Advocacy Team Has Provided Incomplete or Misleading Support for its Position

The Advocacy Team's submission fails to produce any credible evidence in its case against Goodrich. Many of the Advocacy Team's citations are simply incorrect or the cited testimony has little or nothing to do with the stated allegations. Other citations are taken out of context or fail to take into account later, contradictory testimony by the witnesses, and in particular the testimony of Ronald Polzien, who repeatedly is shown to have made false statements under oath. Some seemingly dispositive allegations are simply unsupported by any citation at all.[1] The Advocacy Team's repeated and heavy

[1] The Advocacy Team's ignorance of the Goodrich's actual former operations is perhaps explained by the admission of the principal draftsperson, Mr. Sturdivant, that she did not even read all the available deposition testimony but instead relied upon deposition summaries. *See, e.g.,* Sturdivant Dep., 982:9-986:21. Even more alarming is that these summaries identify contradictory testimony – Mr. Sturdivant has no explanation for ignoring this relevant evidence. Sturdivant Dep., 983:24-990:22; "Q. Well do you think it would have been important to review carefully the testimony of the leadman with respect

reliance upon false allegations, unsupported citations, and an utter lack of regard for the distinction between credible "evidence" and pure conjecture or speculation is disturbing. The Advocacy Team has failed to substantiate the allegations in the Draft Cleanup and Abatement Order concerning Goodrich's alleged conduct at the site. For these reasons, no order should be issued against Goodrich and the case against Goodrich must be dismissed.

3. The Advocacy Team's Allegations Regarding Goodrich's Disposal Practices are Based on Pure Speculation – NOT Facts

a. The *Facts* Establish That Goodrich Had One Burn Pit – NOT Two Burn Pits

The overwhelming weight of the evidence confirms that Goodrich had ***one burn pit*** at the Rialto plant. Ignoring this evidence, the Advocacy Team purports that, "Goodrich maintained at least two burns [sic] pits that were utilized to dispose of all production waste." Ad. Team P&As, 76. In support, the Advocacy Team cites to Mr. Polzien and Mr. Wever (Ad. Team P&As, 76), but both Mr. Polzien and Mr. Wever testifies that Goodrich used only one burn pit – not two. Wever Dec. ¶ 53; Polzien Dep., 289:6-10. Moreover, Ms. Sturdivant, a member of the Advocacy Team and primary draftswoman of the charges against Goodrich, conceded during her deposition that testimony cited does not support the assertion that Goodrich used two burn pits. Sturdivant Dep., 328:5-331:19, 692:18-694:16., 986:23-987:9 ("I mentioned the other day where I cited Mr. Polzien and had indicated two burn pits from the citation, and that was incorrect.") Indeed, after being confronted with the contradictory testimony by the only two witnesses that the Advocacy Team cites, Ms. Sturdivant admits that the testimony demonstrates that Goodrich operated only one burn pit, contrary to the

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to the burn pit at the Goodrich facility? A. Yes, yes. Q. to find out what he had to say about the burn pit and its operations? A. Yes. Q. Well, but you didn't do that? A. Not personally, no. Q. You didn't include any of his testimony? [objection omitted] A. Yes, I think that is correct. . . Q. Is there a reason you didn't tell the State Board Hearing Officer that Mr. Staton, the lead man on the burn pit, said that the waste was burned the day it was put in the pit? A. No, I don't have a reason.); *see also*, Ex. 20250 (Staton Summary); Ex. 20251 (Garee Summary); Ex 20394 (Morris Summary).

assertion made by the Advocacy Team. *Id.* 987:19-988:5.

Other former Goodrich employees confirm that Goodrich utilized only one burn pit:

- "Goodrich's Rialto facility had one burn pit. . . ." Staton Dep., 21:25-22:1.
- "Goodrich's Rialto facility had one burn pit that had a fence surrounding the area." Sachara Dec. ¶ 9.
- "Goodrich's Rialto facility had one burn pit that was fenced with a locked gate." Willis Dec. ¶ 19.
- "There was only one burn pit located at the B.F. Goodrich Rialto plant." Graham Dec. ¶ 5.
- To my knowledge, there was only one burn pit at Goodrich in Rialto, California." Hernandez Dec. ¶ 7.
- "Goodrich Rialto facility had one burn pit that was approximately 300 yards from the laboratory." Ustan Dec. ¶ 8.

The testimony further confirms that there was no additional disposal site at Goodrich's Rialto facility. Wever Dec. ¶ 61 ("there was no 'second disposal pit' on the far southeastern portion of the property"); Wever Dec. ¶ 53; Graham Dec. ¶ 9 ("While I was employed at B.F. Goodrich there was only one burn pit at the facility and there was not a pond, landfill or any other disposal area at the facility."); *see also* Willis Dec. ¶ 21 ("there was not a pond, landfill or any other disposal area at the facility."); Morris Dep., 53:1-16; *see also* Sachara Dec. ¶ 14 ("There was never a trench located anywhere at the Goodrich plant for the burning or disposal of unused propellant."); Hernandez Dec. ¶ 7; Ustan Dec. ¶ 8. The Advocacy Team simply ignores these overwhelming facts, and alleges with reckless disregard for the truth that Goodrich disposed of waste propellant in multiple burn pits.

b. There is No Evidence that Goodrich Used "Area D1" as a Second Disposal Pit

The Advocacy Team alleges in both the Draft Cleanup and Abatement Order and in its Witness Statements that Goodrich used an area commonly referred to as "Area D-1" as a second disposal pit. Ad. Team Witness Stmt., 5-6; Draft CAO ¶ 33(j). This allegation is completely unsupported by the testimonial and documentary evidence

before the Hearing Officer. ***All*** available testimony of former Goodrich employees confirms that only one burn pit was used at the Goodrich facility and that ***it was located near the static test firing bay***.

Further, the available testimony confirms that Goodrich never used a ***trench, pond, pool, ditch, landfill or other disposal pit beyond the single burn pit used at the Rialto plant***. Wever Dec. ¶ 53; Sachara Dec. ¶ 14; Graham Dec. ¶¶ 9, 12; Willis Dec. ¶ 21; Holtzclaw Dec. ¶ 7; Morris Dep., 53:1-16; *see also* Bennett Dec. ¶ 16. Every former Goodrich employee adamantly agrees that ***nothing was buried, dumped or disposed in a trench, pond, pool, ditch or other site***. Willis Dec. ¶ 20; Wever Dec. ¶¶ 61, 64-66; Holtzclaw Dec. ¶¶ 10-12; Graham Dec. ¶¶ 9-12; Beach Dec. ¶¶ 8-9; Hernandez Dec. ¶ 7; Bland Dec. ¶ 11; Ustan Dec. ¶ 8.

Nor is there even one historical document evidencing Goodrich's use of a disposal area on the Southeastern portion of the property. While the Advocacy Team claims to cite to photographs in Attachment 31 to its Memorandum of Points and Authorities – these photographs were ***never produced to Goodrich in violation of the Hearing Officer's Notice of Public Hearing*** (and all amendments thereto). Further, the Advocacy Team bases its two burn pit theory on their interpretation of the undisclosed photographs, despite the fact that not one member of the Advocacy Team has any formal training in the interpretation of aerial photographs. Holub Dep., 300:20-22; Sturdivant Dep., 492:17-493:2.

Importantly, Mr. Adam Bennett, an expert in the interpretation of aerial photographs, has reviewed the available aerial photographs and it is his opinion that the area described by the Advocacy Team as "Area D1" at Revetment O-1 on the southern portion of the property was not used as a burn pit during Goodrich's operations:

> [T]he tonal signatures observed are distinctly different than that observed in Goodrich's burn pit . . . and [are] similar to that of other shadows portrayed on the photograph. As such, the darkened area within Revetment O-1 [what the Advocacy Team calls area D-1] is due to a shadow from the steep sides of the dug out area and the low sun azimuth at the time the photograph was taken.

Bennett Dec. ¶ 18. The Advocacy Team's allegation that Goodrich utilized a second disposal pit on the southern portion of the property is pure speculation without a shred of support from witness testimony or documentary evidence and based on its own admitted inexpert interpretation of undisclosed aerial photographs. The allegations are not based on any credible evidence.

c. The Advocacy Team's Allegation that Water Was Used in Goodrich's Burn Pit is Based Solely Upon *Speculation*

The Advocacy Team recklessly alleges, without any citation to evidence, that "water was routed to the [Goodrich] burn pit by way of pipe buried in the ground, with a nozzle in the pit." Ad. Team P&As, 77. Former Goodrich employees unanimously refute this fact. Mr. Staton, **the supervisor of Goodrich's burn pit**, testified that water was never used at the pit, nor was water available for use. Staton Dep., 26:1-8; *see also* Willis Dec. ¶ 19; Wever Dec. ¶ 57 ("to my knowledge, there was no water source, spigot or hose located near the burn pit.")

In a stunning admission, Ms. Sturdivant, the member of the Advocacy Team who drafted the portion of the brief against Goodrich, testified that the inclusion of this allegation was a ***mistake***:

> Mr. Dintzer: Why didn't you put into the Memorandum of Points and Authorities that Mr. Staton, the lead man on the burn pit, says that no water was put in there?
>
> Ms. Sturdivant: Because I take responsibility for the writing of the leaving the sentence in about the pipeline and that I had intended to take that out, and had written that by recollection and had not cited anything there. And I take responsibility for that error.
>
> Mr. Dintzer: So you you're now saying that there shouldn't be a sentence in the Memorandum of Points and Authorities that water was put into the burn pit, is that your testimony?
>
> Ms. Sturdivant: The statement regarding the pipeline to the burn pit, that's correct.
>
> Mr. Dintzer: That should just be excised from the Memorandum of Points and Authorities and I need not worry about that anymore?
>
> Ms. Sturdivant: Yes.

Sturdivant Dep., 986:4-21. This admission is even more alarming when one looks at the vast number of allegations without any support whatsoever contained in the Advocacy Team's Points and Authorities. If Ms. Sturdivant simply wrote those allegations against Goodrich based on her "recollection," like she did about water use in the burn pit, how is there any assurance that the other allegations are not fabricated?

Moreover, how can Ms. Sturdivant draft allegations against Goodrich based on her "recollection?" Ms. Sturdivant has no personal knowledge regarding Goodrich's operations. Sturdivant Dep., 622:5-8. Indeed, Ms. Sturdivant never worked at the former Goodrich operations and she admittedly does not recall even reading the complete deposition of the Advocacy Team's "star witness" Mr. Polzien. Sturdivant Dep., 291:13-16, 667:23-668:7. Ms. Sturdivant's "recollection," in at least this instance, simply amount to fiction.

d. The Advocacy Team Has No Reliable Evidence To Support its Allegations That Propellant Remained in the Burn Pit After a Burn

The Advocacy Team alleges that a "characteristic" of the Goodrich "burn pits" was that "the bottom [of the burn pit] was typically charred and contained leftover residue from previous burns." Ad. Team P&As 76. The Advocacy Team relies solely on Mr. Polzien's testimony as the basis for this allegation, despite the fact that during the same deposition he later testifies that he ***never saw propellant remaining in the burn pit*** after a burn and that it was his impression that ***all the scrap propellant and oxidizer was consumed by the burn***:

> Mr. Dintzer: Did you -- did you ever see any scrap propellant laying around around the burn pit that was not put into the burn pit when you were in charge of that particular operation?
>
> Mr. Polzien: No.
>
> Mr. Dintzer: Okay. And was it your sense that -- based on your supervision of this particular disposal activity, that the propellant waste that was generated and put into the burn pit was consumed in the fire?
>
> Mr. Polzien: It was my impression, but I don't know for certain.

Mr. Dintzer: I understand. You didn't do a test on the soil, but my question is is that -- was that your impression?

Mr. Polzien: That was my impression.

Polzien Dep., 826:13-827:2.

Further, every other former Goodrich employee, with firsthand knowledge regarding Goodrich's burn pit, confirms that nothing remained in the burn pit after a burn.

- Mr. Staton, the supervisor of the burn pit, testified that ***nothing remained in the burn pit after a burn***. Staton Dep., 98:4-7 (Q. Okay. Do -- was there any smoldering of material in the burn pit after the burn? A. No, sir.") (objection omitted), 25:23-25 ("Q. Did you ever see chunks or pieces of unburnt propellant laying around on the burn pit? A. No, no."), 98:4-7, 98:11-25 ("Q. Any ash? A. Never saw any –") (objections omitted).

- Mr. Garee, who worked in production and later quality control, testified that he viewed the burn pit at least three to four times after a burn and nothing remained in the burn pit. Garee Dep. 190:2-193:8; 270:1 1-11.

- Mr. Wever, who along with Mr. Dennison set the procedures regarding the burn pit, testified that "[a]fter a burn, nothing remained in the burn pit – all material was completely consumed during the burn." Wever Dec. ¶¶ 58-59

- Mr. Graham also testified that "[t]here was no propellant or scrap oxidizer remaining after a burn." Graham Dec. ¶ 6.

Moreover, Mr. Polzien's early testimony on this point is inconsistent with experts who have worked in the manufacturing of solid rocket propellant for over forty years. Dr. Claude Merrill, who has worked with solid rocket propellant with the United States Air Force since 1966, concludes that:

> the burning of propellant and oxidizer waste is a very effective manner to dispose of this material. ***In my experience all propellant and oxidizer is consumed in the burning of this waste.*** Based on my review of the testimony and declarations of former Goodrich employees, Goodrich's standard procedures for loading the burn pit, with the scrap propellant stacked on the bottom of the pit, then containerized ammonium perchlorate (or other oxidizer) stacked on top, then any used rags, is a very effective method for disposing of this waste.

Merrill Dec. ¶ 15 (emphasis added).

Moreover, an expert in chemical engineering, Dr. Jimmie Oxley, has conducted

experimental burns of several varieties of Goodrich's propellant formulations (both inside the laboratory and outside) and concluded that propellant burns extremely efficiently and virtually all perchlorate is consumed during a burn. Indeed, only approximately 0.002% of the perchlorate remains in the ash after a burn. Oxley Dec. ¶¶ 12-14. Again, the Advocacy Team can cite to no reliable evidence to establish that any residue, much less perchlorate residue, remained in the burn pit after a burn. Without any such evidence, and given the substantial percipient and expert testimony to the contrary, this allegation must be disregarded as unsupported.

e. There is No Evidence that Scrap Propellant was Left in the Burn Pit Overnight

The Advocacy Team asserts that another "characteristic" of the "burn pits" was that "[u]nburned scrap and TCE/propellant slurry were at times left overnight in the pit." Ad. Team P&As, 76. The Advocacy Team again relies solely upon the testimony of Mr. Polzien for this allegation. *Id.* Yet, not even Mr. Polzien, the Advocacy Team's star witness, can confirm that waste was left in the burn pit overnight before burning. The Advocacy Team fails to mention that Mr. Polzien, himself, later retracts his prior testimony during cross examination:

> Mr. Dintzer: Did you ever see any type of barrels or cartons of materials that were going to be burned left in the burn pit over an evening such that they were there the next day?
>
> Mr. Polzien: I don't recall.

Polzien Dep., 828:16-828:20.

Moreover, every single former Goodrich employee with knowledge regarding the burn pit confirms the fact that waste was never left in the burn pit overnight:

- "***I never let [waste] stand***. I mean, I -- I burnt it when it was there." Staton Dep., 63:6-16; *see Id.* 57:2-58:8, 63:6-16, 25:23-25, 98:4-7, 98:11-25 (emphasis added).
- "All material placed in the Goodrich burn pit was burned immediately. The material was never placed in the pit and left for a lengthy period of time or over night." Wever Dec. ¶ 55.